

Notes From the Space Foundation's Space Business Forum 4 June 2009, New York City, New York

The following are twitter notes taken during the Space Foundation's Space Business Forum. The notes appear in reverse chronological order, so to read them as they were written, you should start with entry 90 and read to entry 1.

1. There are long-term public investors. He's done. We're up next so that means I'm done now. Goodbye all!3:56 PM
2. Moving into 3rd wave globalization of our industry. Q: when should companies move into public mkts? A: need real customers, leadership, etc.3:54 PM
3. Space industry accepted by public markets. Distinguishing companies by start-up, growth, and mature phases. We have a real industry.3:52 PM
4. Aeospace & Defense companies are in favor in public markets. Manifest backload of SpaceX is the real deal.3:50 PM
5. Normal regulatory stuff, piece of cake, if you're an honesty, etc. Doesn't buy the "old space" vs. "New space" discussion.3:48 PM
6. In US defendant can't bring a counterclaim against claimant, leading to unmerited claims and he doesn't like it.3:46 PM
7. Unseen regulatory req'ts are a prob. Option expenses, for example, due to recent changes in accounting rules. The unknowns are the problems.3:45 PM
8. JH is describing his new company. What's it like being a publicly-traded company? Its not as bad as it seems. It's just work...3:42 PM
9. John Higginbotham to speak now. He left entrepreneurial space world & is now CEO of Integral Systems. Member of OTS club, Older Than Sputnik3:39 PM
10. End of RG interview. Next is a break followed by John Higginbotham's "View from the Publicly Traded". Back in 30 minutes.3:04 PM
11. RG was able offset "ones of millions" od \$ of his "tens of millions" \$ cost of spaceflight.3:02 PM
12. Q: what is training and is there an age limit. A: no age limit for suborbital. Going to orbit is more challenging, you adapt after an hour.2:58 PM
13. "It is coming it cannot be stopped." Lead, follow, or get out of the way moment.2:56 PM
14. RG is putting full attention to private space now and is convinced many companies will succeed in making space business.2:54 PM
15. As price comes down and access is democratized, space markets will open up. RG invested in space for first 15 yrs out of passion.2:53 PM
16. He's found most space biz ideas as useless. Space markets are currently unknowable. True markets will be found once people start going2:52 PM
17. RG was a "loss leader" doing testing for hire, but didn't cover all costs... Yet. RG now on conference talking circuit.2:50 PM
18. RG looked for activities he could do to pay for some of the spaceflight cost. E.g. Did testing for Seiko spacewalk watch.2:48 PM
19. Grew up among astronauts so he thought *everybody* got to go to space. Invested in 10 space companies all of which failed.2:44 PM

20. RG generated his wealth through the gaming industry. All his personal investing was done for privatization of space.2:43 PM
21. Lon Levin talking about the Russians' capitalist tendencies. Tom Shelley will interview Richard Garriott.2:42 PM
22. Tom Shelley, VP Marketing for Space Adventures, pinch hitting for Eric Anderson.2:36 PM
23. XCOR sees point to point coming after orbital capabilities. End of panel. Next "The Business of Space Tourism" w/Eric Anderson & R Garriott.2:35 PM
24. Q: can XCOR go int'l? A: XCOR has rcvd a lot of intl interest. VG sees itself as an intl company. VG aiming at point to point.2:33 PM
25. WK2/SS2 is scaled for current mission. VG wants to exploit non-tourism suborbital market b4 going orbital.2:32 PM
26. Q: Falcon 9 target launch dates are not set. F9 not dependent on F1. Q: how scalable is Lynx? A: Lynx can be scaled in size up to 30-40%.2:30 PM
27. Q: NASA procured 15 Dragons and some will be available at lowered (refurb only) prices. Will offer missions of up to 2 yrs.2:27 PM
28. WK2 had test flight of 140 knots, 20kft, 7 tests, over 2.5 hrs. Flexible market opportunities. Company is on the move.2:25 PM
29. Patti is presenting a brief history of Virgin Galactic. Status today: SS2 is 75% complete. SS2 rollout under WK2 this fall.2:23 PM
30. Spkr 3; Patti Grace-Smith is a true friend of the industry. Showing the Virgin Galactic SS1 video.2:17 PM
31. Lynx designed to fly 4x per day. Orbital design in the works. Fully reusable approach. Showing Lynx experience video.2:14 PM
32. Space Tourism is one trick pony... All myths. Adressable markets by 2014 is \$7.5B. Jet-like ops. Green thrusters, piston pumps, very safe.2:12 PM
33. Showing 90-sec 10-yr history of XCOR video. Myths of space flight: only govts can do space, heats of reentry too high, R&D to costly2:10 PM
34. Propulsion redundancy provided by 9 engines on Falcon 9. F9 scheduled to launch twice in 2009. Next spkr; Andy Nelson.2:07 PM
35. Next launch a manth from now (13-14 July). Has \$2B revenue generated on the books. Dragonlab is "breadwinner". 29 mission manifest2:05 PM
36. Gwynne now showing standard SpaceX slides. Flat org. Don't fill in time cards. Will launch F9 later this year. Achieved orbit last year.2:02 PM
37. Less risky industry, better portfolio, the next space age will be the result. Spkr 1: Shotwell-showing SpaceX flight 4 video.1:58 PM
38. Competition from NewSpace will cause "old space" (I don't agree with the use of that term) to "wake up". Why should investors care?1:55 PM
39. PGS is representing Virgin Galactic. Fuller is defining NewSpace. Natl Security Space and NASA are depending on NewSpace.1:53 PM
40. The Newspace panel moderated by Joe Fuller, Futron CEO. Panelists include Gwynne Shotwell, Andy Nelson, and Patti Grace-Smith.1:50 PM
41. ... "Government Acquisition - Where Are Dollars Flowing For Space?" because I'm on it. But there's lots to come b4 then.1:46 PM
42. The next panel "New Space Come of Age" will begin shortly. Just as a bit of foreshadowing, I won't be able to tweet during the last panel...1:44 PM

43. Flight cost could come down to \$20. This is too new for big pharma. Will Tom take advantage of COTS? Yes. He's ready to do it. Lunch now!11:58 AM
44. Short time expts probably in field of metallurgy. Bureaucracy is too daunting to bew entrants. Flight was \$30M, not \$3M. Sorry!11:56 AM
45. Flights right now are free. If they had to pay, would be \$3M. Could they do 3min experiments? Didn't find any b/c he wasn't looking for it.11:54 AM
46. Changes for microbes requires 6 days. Getting astronaut time is hard and not appropriate. Expts stay in shuttle. More when ISS is complete.11:53 AM
47. \$200M per year. Other vaccine targets will have higher values. Tom will answer questions. Micro-g on ISS is a financial "boondoggle".11:51 AM
48. They IDed salmonella vaccine target and seeking IRB to submit investational new drug application to FDA. Salmonella vaccine valued at...11:49 AM
49. Astrogenetix is a Natl Lab Pathfinder. Increased microbial virulence IDs viable targets and speeds up development timeline.11:46 AM
50. Astrogenetix is a biotech biz for using ISS. Biomarker discovery. Theory is that Microbe growth benefits from magified diffusion effects..11:43 AM
51. Astrotech has good cash flow engine. Astrogenetix spunoff to work with micro-g experiments. Micro-g drastically affects physical rxns.11:39 AM
52. Astrogenetix-saving lives on Earth by developing products in space. STS deadline of 2010 squeezed out science from cargo bay.11:37 AM
53. End of panel. Next up: featured speaker, Tom Pickens III of Astrotech.11:32 AM
54. Q: is ATC use of GPS being encouraged by govt? A: NextGen ADSB will do that.11:31 AM
55. Q: what is biz model for GPS? A: GPS provides public good. Industry benefits by being more productive which translated to tax revenue.11:30 AM
56. ISO has working groups developing standards with govt and private groups. ITU plays an important role, reponses to purposeful interference11:27 AM
57. Prosperity for global village will benefit from cooperation on infrastructure. Wants to work together on other topics, too.11:25 AM
58. Infrastructure protection on agenda w/bilateral talks w/allies. As GEO congestion increases, there's a higher need 4 situational awareness11:24 AM
59. DHS in charge of protecting satellite infrastructure. DoD partnering w/DHS. 18 critical infrastructure sectors will benefit from cooperation11:20 AM
60. Starting policy reviews for new admin. Digital divide for remote locations of embassies overcome by use of commercial telecomm sats.11:17 AM
61. Need to integrate GPS with other systems to improve productivity. Spkr 3: Dick Buenneke, Dept of State.11:14 AM
62. Technical exploitation: energy exploration, aviation. Timing: ability to synchronize large of events precisely.11:12 AM
63. GPS has high impact on many commercial sectors. Focusing on productivity. GPS allows doing more w/less. Studies done est billions \$ savings.11:10 AM
64. USAF has continually maintained, operated, and modernized the constellation for past 30 yrs.11:08 AM
65. PNT is focus of his remarks. By 2020 there will be 4 civil signals usable by Galileo system too. GPS great example of govt infrastructure.11:07 AM

66. New capabilities will lead to big changes in biz viability computations. Spkr 2: Ed Morris, ITT Space Systems.11:04 AM
67. Starting in 10 yrs, there will be interlinked intra- and btwn constellations. Networked & reprogrammable sats.11:03 AM
68. Need to eliminate last mile barrier (w/fiber optics for exmpl, too expensive to get to all) using space tech. Space shldnt be a last resort.11:00 AM
69. Space great for DTH, but adoption rates track along metro areas, not just underserved populations, it's an economic decision.10:58 AM
70. Spkr 1: Rick Sanford, Cisco: space is integral to economic growth. More than just communications. Superconsolidation in next 15 yrs.10:56 AM
71. Importance of space infrastructure in ways not fully appreciated by most. Weather risk affects 15% of economy that can be managed w/space.10:54 AM
72. End of panel. Back at 10:45 w/panel "Space as an Element of Economic Infrastructure" led by Steve Kenney.10:30 AM
73. Q: what is role of space wrt ATC systems? A: mobile sts have a role. Its capital intensive and difficult in short term can serve real mkts.10:29 AM
74. Different elements include FCC, stimulus, govt as customer, etc. Anti-deficiency limits on govt spending make calcs difficult.10:27 AM
75. Q: is there a role of govt to make this biz more efficient? A: current role of govt too high. Innovators now coming out of commercial arena.10:24 AM
76. Q: can telecomm orbital slots be valued seperately from the satellite? A: regulators frown on it. That real estate biz isn't active today.10:22 AM
77. A: equity mkts grasp easy-to-understand and universally attractive. Could P2P be the sizzling opportunity people would invest in?10:18 AM
78. Delay of payback is a big hurdle. Hedge funds is 67% of daily trading. Q: is space mkt capital big enough to emerge as retail commodity?10:17 AM
79. Predicibility of cash flows (how much & when) is biggest barrier. Regulatory risk hangs off of that. Ability to work w/ other operators.10:14 AM
80. Comm is what space can provide to today's market. Q: obstacles to future investment? Highest risk factors? A: comm is a commodity product.10:11 AM
81. Q: what mkts are big enough to draw attn of investors today? A: telecomm (surprise, surprise), then mobilesat, sat integration services.10:09 AM
82. Hedge funds work on shorter time frames. Also not a lot of space names trading on equity mkts.10:08 AM
83. Q: are investors educated enough re space? A: on debt side, there's a reasonable grp of investors. Equity side less mature.10:07 AM
84. Entrepreneurs that went public then fizzled weren't ready... They were too young to go public. Biz must be well anchored.10:05 AM
85. Debt mkts will be more tolerant than equity mkt, so go that route first when ready to go public. Industry needs innovators & entrepreneurs.10:04 AM
86. Q: What is appropriateness of public vs private ownership? A; must execute to the biz plan as planned, the good time for public mkt.10:02 AM
87. Market has learned to distinguish btwn established companies & younger companies (still telecomm) that show strain. Mkt wary of - cash flow10:00 AM
88. 2nd speaker: Andrew Africk. Equity and debt mkts impacted by space market. Mostly talking telecomm. Debt mkt prices rebounding past 2 mths.9:58 AM

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89. 1st speaker: Heidi Wood. Space is intriguing to Wall Street and has done well on the market in general. Only made brief comments.9:55 AM
90. Space Foundation's Space Business Forum. In New York City. 1st panel: Sector Performance, Trends, and Expectations, led by Anita Antenucci.9:52 AM